

New records of the teiid lizards *Kentropyx paulensis* (Boettger, 1893) and *Tupinambis duseni* Lönnberg, 1910 (Squamata: Teiidae) from the state of Minas Gerais, southeastern Brazil

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ABSTRACT: *Kentropyx paulensis* and *Tupinambis duseni* are teiid lizard species endemic to the Cerrado ecoregion. They are, respectively, considered “Vulnerable” and “Near Threatened” in the state of Minas Gerais, Brazil. Herein, we report the occurrence of both species in the municipality of Buenópolis, Minas Gerais, representing their easternmost locality and the second state record. An updated distribution map for *K. paulensis* and *T. duseni* is presented.

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The Teiidae family is composed of about 140 New World lizard species (Uetz and Hošek 2014), ranging from Argentina to northeastern United States (Vitt and Caldwell 2009), with 38 species known from Brazil (Bérnils and Costa 2012; Giugliano *et al.* 2013; Arias *et al.* 2014a, b). Teiid systematics has long been controversial (for recent discussions see: Harvey *et al.* 2012; Giugliano *et al.* 2013; Pyron *et al.* 2013), but traditionally two subfamilies are recognized, with seven genera occurring in Brazil: Teiinae (*Ameiva*, *Cnemidophorus*, *Kentropyx*, *Teius*) and Tupinambinae (*Crocodylus*, *Dracaena* and *Tupinambis*).

Here we provide new distribution records for two poorly known teiid lizards endemic to the Cerrado, *Kentropyx paulensis* (Boettger, 1893) and *Tupinambis duseni* Lönnberg, 1910. Specimens were found during a four-day herpetological survey aiming to assess the environmental impact of a silviculture project in Serra do Cabral, municipality of Buenópolis, state of Minas Gerais, Brazil. Serra do Cabral, a regional designation of an isolated plateau of the Espinhaço Range (Derby 1906; Gontijo 2008), is covered by a mosaic of Cerrado physiognomies, ranging from forest formations like *cerradões* and riparian forest, to open vegetation formations like savannas (*cerrado sensu stricto*), high elevation grasslands, rocky fields (*campos rupestres*) and palm-marshes (*veredas*) (Hatschbach *et al.* 2006).

Kentropyx paulensis — A medium-to-small species (snout-vent length [SVL] up to 77 mm) endemic to the Cerrado, with its core distribution in the south-central portion of this ecoregion (Gallagher and Dixon 1992). *Kentropyx paulensis* is found in open habitats like grasslands and *cerrado sensu stricto*, being absent in

arboreal formations like riparian forests and *cerradões* (Nogueira *et al.* 2009). This species is diagnosed by the presence of small dorsal scales, 15–22 femoral pores, 3–4 dorsolateral light stripes per side, and a narrow mid-dorsal stripe extending from the parietal region, branching near the forelimbs of adults, and forming two stripes that gradually separate and coalesce at the base of the tail (Gallagher and Dixon 1980, 1992).

During a survey in Serra do Cabral, specimens of *Kentropyx paulensis* were recorded in two sites. The first record was made on 8 December 2010, 13:30 h, on the edge of a newly grown *Eucalyptus* plantation, in an area of *campos rupestres* characterized by sandy (quartzitic) soil, surrounded by rocky outcrops, predominantly covered by herbaceous vegetation and high density of bromeliads of the genus *Encholirium* (17.887778° S, 44.303056° W; elevation 1267 m; Figure 1). Two individuals were found foraging: one male (SVL 50.72 mm; Figure 2) and one of undetermined sex (not collected). The second record occurred on 9 December 2010, 13:00 h, when a female (SVL 60.45 mm) was caught in a grassland area (*campo limpo*) with sparse flat quartzite stones (17.915833° S, 44.273814° W; elevation 1155 m). Collection permits (321185-1) were issued by the Instituto Chico Mendes de Conservação da Biodiversidade (ICMBio). Voucher specimens were deposited at the herpetological collection of the Laboratório de Zoologia dos Vertebrados, Universidade Federal de Ouro Preto, Minas Gerais, Brazil (LZV/UFOP 1125S [male] and 1126S [female]).

Kentropyx paulensis was described by Boettger (1893) based on specimens from an unspecified locality in São Paulo state. Since then, the species was recorded from

the department of Santa Cruz in Bolivia and from the Brazilian Federal District and states of Tocantins, Goiás, Mato Grosso, Mato Grosso do Sul, Bahia and Minas Gerais (Figure 3, Table 1). Serra do Cabral represents the easternmost locality record for *K. paulensis* (previously the municipality of Taubaté, São Paulo, 45.56°W), and the second record for Minas Gerais, *ca.* 250 km E in straight-

line from Paracatu, the closest known locality (Figure 3).

Two records should be cited in addition to those of Table 1. Alencar *et al.* (2009) mention the occurrence of *Kentropyx* cf. *paulensis* in the municipality of Diamantina, state of Minas Gerais. If the identity of the specimen is confirmed, it will supplant the present record as the easternmost record of the species and will be the third record for the state of Minas



FIGURE 1. One of the two sites where *Kentropyx paulensis* was recorded in Serra do Cabral, municipality of Buenópolis, state of Minas Gerais, Brazil.



FIGURE 2. Adult male of *Kentropyx paulensis* (LZV/UFOP 1125S) found in Serra do Cabral, municipality of Buenópolis, state of Minas Gerais, Brazil.

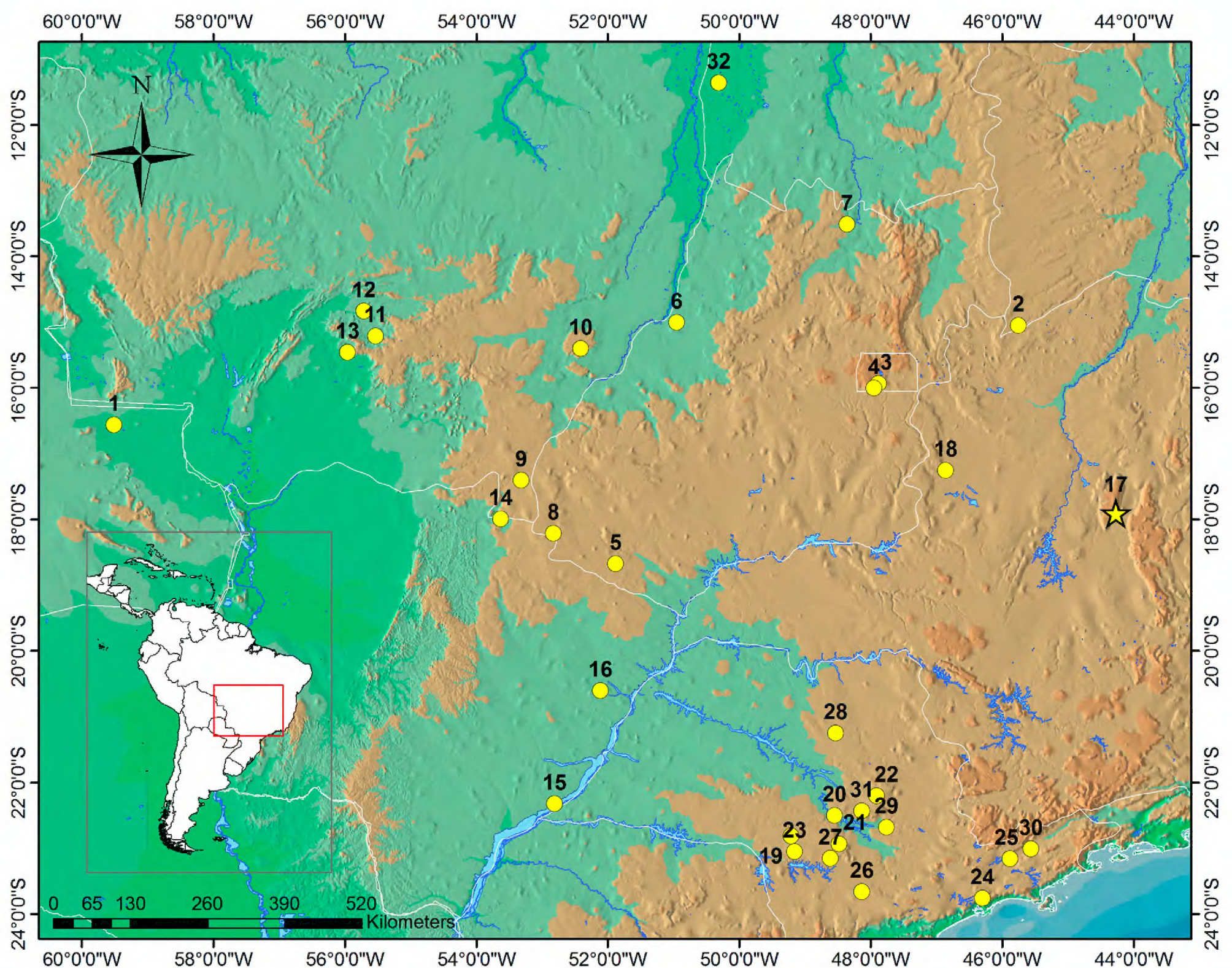


FIGURE 3. Distribution map of *Kentropyx paulensis*. Circles represent literature data and star represents the new record in Serra do Cabral, state of Minas Gerais. For locality details see Table 1.

Gerais. In addition, several studies mention the presence of *Kentropyx* aff. *paulensis* in the Estação Ecológica Serra Geral do Tocantins and its vicinities, in Jalapão region, state of Tocantins (*e.g.*, Nogueira 2006; Nogueira *et al.* 2011; Recoder *et al.* 2011). According to Nogueira (2006) and Werneck *et al.* (2009), individuals of this area are likely to represent a new species closely related to *K. paulensis*.

Tupinambis duseni — A large species (SVL up to 410 mm) endemic to the south-central Cerrado (Pérez and Colli 2004), occurring mainly in grasslands and cerrado *sensu stricto* habitat (Colli *et al.* 2002; Nogueira *et al.* 2005; Recoder and Nogueira 2007; Valdujo *et al.* 2009). On 8 December 2010, 13:00 h, an adult *T. duseni* (Figure 4) was found basking at the edge of a dirt road in a cerrado *sensu*

TABLE 1. Locality records of *Kentropyx paulensis*.

COUNTRY	STATE/ DEPARTMENT	MUNICIPALITY/ DISTRICT	LOCALITY	MAP ID.	LAT.	LONG.	SOURCE
Bolivia	Santa Cruz	San Rafael	Laguna la Selva	1	-16.56°	-59.51°	Embert (2005)
Brazil	Bahia	Cocos	Fazenda Trijunção Parque Nacional Grande Sertão Veredas	2	-15.05°	-45.75°	Recoder and Nogueira (2007), Nogueira <i>et al.</i> (2009)
Brazil	Distrito Federal	Brasília	Reserva Ecológica do Roncador	3	-15.93°	-47.88°	Costa <i>et al.</i> (2013)
Brazil	Distrito Federal	Brasília	Reserva de Cerrado da Área Alfa	4	-16.00°	-47.95°	Nogueira <i>et al.</i> (2009)
Brazil	Goiás	Aporé	UHE Espora	5	-18.67°	-51.88°	Vaz-Silva <i>et al.</i> (2007)
Brazil	Goiás	Aruanã		6	-15.00°	-50.95°	Gallagher and Dixon (1992)
Brazil	Goiás	Minaçu		7	-13.51°	-48.36°	Colli <i>et al.</i> (2002)
Brazil	Goiás	Mineiros	Parque Nacional das Emas	8	-18.21°	-52.83°	Nogueira <i>et al.</i> (2009), Valdujo <i>et al.</i> (2009)
Brazil	Mato Grosso	Alto Araguaia		9	-17.40°	-53.32°	Medes-Pinto and Miranda (2011)
Brazil	Mato Grosso	Barra do Garças		10	-15.40°	-52.41°	Colli <i>et al.</i> (2002)
Brazil	Mato Grosso	Chapada dos Guimarães	Buriti	11	-15.21°	-55.53°	Gallagher and Dixon (1992)
Brazil	Mato Grosso	Chapada dos Guimarães	UHE Manso	12	-14.83°	-55.71°	Strüssmann (2000)
Brazil	Mato Grosso	Cuiabá	Gustavo Dutra	13	-15.46°	-55.96°	Gallagher and Dixon (1992)
Brazil	Mato Grosso do Sul	Alcinópolis	Fazenda Vista Bonita	14	-17.99°	-53.63°	Valdujo <i>et al.</i> (2009)
Brazil	Mato Grosso do Sul	Anaurilândia	UHE Sérgio Motta	15	-22.32°	-52.81°	Nogueira (2006)
Brazil	Mato Grosso do Sul	Três Lagoas	Fazenda Canaã	16	-20.60°	-52.11°	Gallagher and Dixon (1992)
Brazil	Minas Gerais	Buenópolis	Serra do Cabral	17	-17.91°	-44.27°	This study
Brazil	Minas Gerais	Paracatu		18	-17.25°	-46.86°	Werneck <i>et al.</i> (2009)
Brazil	São Paulo	Águas de Santa Bárbara	Estação Ecológica de Santa Bárbara	19	-22.81°	-49.21°	Marques <i>et al.</i> (2009), Nogueira <i>et al.</i> (2009)
Brazil	São Paulo	Barra Bonita	Falcão Filho	20	-22.50°	-48.55°	Gallagher and Dixon (1992)
Brazil	São Paulo	Botucatu		21	-22.93°	-48.48°	Gallagher and Dixon (1992)
Brazil	São Paulo	Brotas	Estação Ecológica de Itirapina	22	-22.20°	-47.91°	Anjos <i>et al.</i> (2002)
Brazil	São Paulo	Cerqueira Cesar		23	-23.05°	-49.16°	Gallagher and Dixon (1992)
Brazil	São Paulo	Santo André	Paranapiacaba (Alto da Serra)	24	-23.76°	-46.30°	Gallagher and Dixon (1992)
Brazil	São Paulo	São José dos Campos		25	-23.16°	-45.88°	Santos <i>et al.</i> (2007)
Brazil	São Paulo	Itapetininga		26	-23.66°	-48.13°	Gallagher and Dixon (1992)
Brazil	São Paulo	Itatinga		27	-23.15°	-48.61°	Gallagher and Dixon (1992)
Brazil	São Paulo	Monte Alto		28	-21.25°	-48.53°	Gallagher and Dixon (1992)
Brazil	São Paulo	Piracicaba	Artemis (Porto João Alfredo)	29	-22.68°	-47.76°	Gallagher and Dixon (1992)
Brazil	São Paulo	Taubaté		30	-23.01°	-45.56°	Ihering (1898)
Brazil	São Paulo	Torrinha		31	-22.43°	-48.13°	Gallagher and Dixon (1992)
Brazil	Tocantins		Ilha do Bananal	32	-11.36°	-50.31°	Gallagher and Dixon (1992)



FIGURE 4. (A) Whole body and (B) detail of head of the living adult specimen (not collected) of *Tupinambis duseni* found in Serra do Cabral, municipality of Buenópolis, state of Minas Gerais, Brazil.

stricto area with sandy clay soil, sparse grass and trees, and evidence of recent fire (17.885556° S, 44.293333° W; elevation 1250 m; Figure 5). The specimen could not be captured, but through the photographic record we could promptly identify it as *T. duseni* due to the presence of convex dorsal scales, and scales on nape bigger than dorsals. These characters are absent in all other species of *Tupinambis* (*sensu lato*) (Péres 2003; Péres and Colli 2004).

Tupinambis duseni was described by Lönnberg in Lönnberg and Andersson (1910) based on a specimen collected in an unknown location in the state of Paraná, probably in Cerrado areas at the northern parts of that state. Since then, the species has been recorded in Cerrado areas of Paraguay and the Brazilian Federal District and states of Bahia, Goiás, Mato Grosso, Minas Gerais and Tocantins (Figure 6, Table 2). Serra do Cabral represents the easternmost locality record for *T. duseni* (previously in Correntina, Bahia, 44.95° W) and the second record for Minas Gerais, *ca.* 335 km SE in a straight-line from Parque Nacional Grande Sertão Veredas, the closest known locality.

Evaluating whether the lack of information about a particular species is associated with its natural rarity or just the lack of information is often a hard task. According to IUCN (2001), when evaluating the conservation status of



FIGURE 5. Site of record of *Tupinambis duseni* in Serra do Cabral, municipality of Buenópolis, state of Minas Gerais, Brazil.

a particular species, great care should be taken in choosing between “Data Deficient” and a “Threatened” status. This is the case of *Tupinambis duseni* and *Kentropyx paulensis*. Information for these species in Minas Gerais is nearly absent. Until now both were known to only one locality in the state, without any additional data. This is certainly associated with the scarcity of even basic lizard inventories in the Cerrado of Minas Gerais. Anyway, we cannot discard the possibility that the two species were abundant in the past and suffered a severe population decline due to

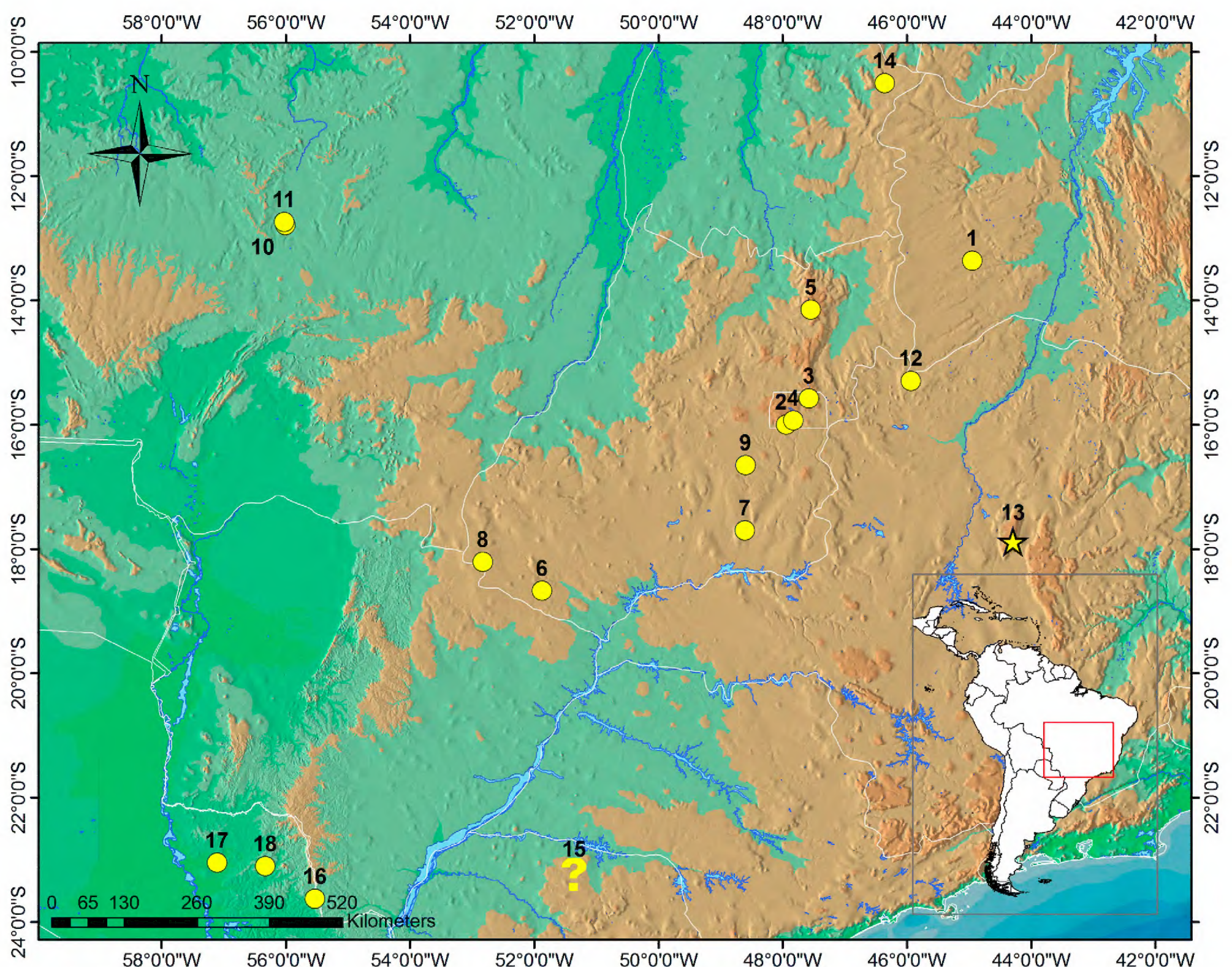


FIGURE 6. Distribution map of *Tupinambis duseni*. Circles represent literature data, “?” represents the unknown type locality in the state of Paraná, and star represents the new record in Serra do Cabral, state of Minas Gerais. For locality details see Table 2.

TABLE 2. Locality records of *Tupinambis duseni*.

COUNTRY	STATE/ DEPARTMENT	MUNICIPALITY/ DISTRICT	LOCALITY	MAP ID.	LAT.	LONG.	SOURCE
Brazil	Bahia	Correntina		1	-13.36°	-44.95°	Péres and Colli (2004)
Brazil	Distrito Federal	Brasília	Reserva de Cerrado da Área Alfa	2	-16.00°	-47.95°	Nogueira <i>et al.</i> (2009)
Brazil	Distrito Federal	Brasília	Estação Ecológica de Águas Emendadas	3	-15.58°	-47.58°	Brandão and Araujo (1998)
Brazil	Distrito Federal	Brasília	Reserva Ecológica do IBGE (Roncador)	4	-15.93°	-47.83°	Costa <i>et al.</i> (2013)
Brazil	Goiás	Alto Paraíso de Goiás		5	-14.15°	-47.55°	Péres and Colli (2004)
Brazil	Goiás	Aporé	UHE Espora	6	-18.67°	-51.88°	Vaz-Silva <i>et al.</i> (2007)
Brazil	Goiás	Caldas Novas		7	-17.7°	-48.61°	Péres and Colli (2004)
Brazil	Goiás	Mineiros	Parque Nacional das Emas	8	-18.21°	-52.83°	Péres and Colli (2004); Nogueira <i>et al.</i> (2009); Valdujo <i>et al.</i> (2009)
Brazil	Goiás	Silvânia	Floresta Nacional de Silvânia	9	-16.65°	-48.60°	Moraes <i>et al.</i> (2012)
Brazil	Mato Grosso	Lucas do Rio Verde	PCH Canoa Quebrada	10	-12.79°	-56.01°	Campos <i>et al.</i> (2011b)
Brazil	Mato Grosso	Lucas do Rio Verde	PCH Foz do Cedro	11	-12.74°	-56.03°	Campos <i>et al.</i> (2011a)*
Brazil	Minas Gerais	Formoso	Parque Nacional Grande Sertão Veredas	12	-15.30°	-45.94°	Recoder and Nogueira (2007); Nogueira <i>et al.</i> (2009)
Brazil	Minas Gerais	Buenópolis	Serra do Cabral	13	-17.88°	-44.29°	This study
Brazil	Tocantins	Mateiros	Jalapão	14	-10.51°	-46.36°	Péres and Colli (2004), Nogueira <i>et al.</i> (2009), Recorder <i>et al.</i> (2011)
Brazil	Paraná	?		15	—	—	Lönnberg and Anderson (1910), Péres and Colli (2004)
Paraguay	Canindeyú	Itanará	Colonia Ybycuí	16	-23.63°	-55.53°	Fitzgerald <i>et al.</i> (1999); Péres and Colli (2004)
Paraguay	Concepción	Paso Barreto		17	-23.05°	-57.11°	Fitzgerald <i>et al.</i> (1999); Péres and Colli (2004)
Paraguay	Concepción	Yby Yauí	Estancia Siete Lagunas	18	-23.10°	-56.33°	Fitzgerald <i>et al.</i> (1999)

* The geographic coordinates given by Campos *et al.* (2001a) (14.2083° S, 56.7766° W), do not match the PCH Foz do Cedro, and, therefore, were corrected by us.

regional habitat loss, since we have no historical data on their occurrence in Minas Gerais.

Despite the lack of additional information, *Kentropyx paulensis* is considered a “Vulnerable” (VU) species in Minas Gerais, and *Tupinambis duseni* is “Near Threatened” (NT) (Fundação Biodiversitas 2007; COPAM 2010). In the case of *K. paulensis*, which is habitat-specialist, its inclusion as VU can be associated with a variety of threats such as habitat loss for the establishment of monocultures, invasion of exotic grasses and changes in natural fire regimes (Fundação Biodiversitas 2007; Marques *et al.* 2009). Because *T. duseni* is also a habitat specialist (Valdujo *et al.* 2009), it is expected it suffers the same threats as *K. paulensis*.

The records of *Tupinambis duseni* and *Kentropyx paulensis* for Serra do Cabral represent a considerable distribution extension for both species, and are an indicative of more populations in Minas Gerais. Nevertheless, in the past few decades much of the natural landscapes of Serra do Cabral have been replaced by *Eucalyptus* and *Pinus* plantations, an economic activity that is still increasing (Leite *et al.* 2011), and large human-caused fires occur frequently in the area. This is particularly alarming given Serra do Cabral is an important area of endemism of vascular plants (*e.g.*, Zappi and Taylor 2008; Bautista *et al.* 2011; Echternacht *et al.* 2011; Loeuille, *et al.* 2011; Fidanza *et al.* 2013). Moreover, although the plateau of Serra do Cabral is poorly studied for most faunal groups, there are at least two frog species (*Scinax cabralensis* Drummond, Baêta & Pires, 2007, and *Bokermannohyla sagarana* Leite, Pezzuti & Drummond, 2011) and one Diptera species (*Tomoplagia grandis* Prado, Norrbom & Lewinsohn, 2004) with known distribution restricted to this massif. The Parque Estadual da Serra do Cabral, a protected area established in 2005 and yet poorly structured, is *ca.* 2 km from the study areas and presents environments favorable

for the occurrence of *K. paulensis* and *T. duseni*. Therefore, the presence of both species in this protected area is expected, but need to be confirmed by future surveys.

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